

REMARKS

Favorable consideration and allowance of the claims of the present application are respectfully requested.

In the present Official Action, Claims 9-16 were rejected under 35 U.S.C. §102(b) as being unpatentable over U.S. Patent No. 5,835,227 to Grodnensky et al. (Grodnensky). Furthermore, Claims 14-16 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,716,559 to Leidy et al. (Leidy). Furthermore, Claims 9-13 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Leidy et al. in view of Grodnensky et al..

Claim 1-8 and 17-21 are withdrawn from consideration.

With respect to the rejection of Claims 9-16 under 35 U.S.C. §102(b) as being anticipated by Grodnensky, applicants respectfully disagree. Particularly, independent Claim 9 is being amended to set forth that the invention implements a single reticle design for varying the overlay conditions (varying overlay tolerances) at a single portion of a single wafer, wherein the reticle is stepped over one or more portions of the single wafer to produce various areas having the varying overlay tolerances. However, the present invention teaches a single reticle that enables varying the overlay conditions wherein each overlay condition has a different overlay tolerance contributed by both varying image size and pattern feature alignment built into the reticle design. It is submitted that no new matter is being entered by this amendment. Respectfully, this feature is neither taught nor suggested by Grodnensky.

Grodnensky is directed to a system for determining sigma variations across an exposure field (sigma variations comprising the partial coherence factor of an (optical)

projection system used to project the light illuminated by an illumination system through the mask or reticle pattern). The system described in Grodnensky simply does not teach a system that exposes a portion of a single wafer to a pattern of a reticle, wherein the pattern has features producing varying overlay conditions, wherein each of said varying overlay conditions has a different overlay tolerance contributed by both varying image size and pattern feature alignment built into the reticle design. Moreover, Grodnensky is directed to a tooling test (the optical system) by determining, for example, tool astigmatisms and optical lens problems. They simply do not test process capabilities as in the present invention. As Grodnensky does not teach these features, it can not anticipate Claim 9 as amended. Furthermore, the same limitations are being added to amended independent Claim 14. Thus, for the same reason, Grodnensky does not anticipate Claim 14 as amended.

Accordingly, the Examiner is respectfully requested to withdraw the rejection of amended Claims 9 and 14 and dependent Claims thereon, as being anticipated by Grodnensky.

Applicants respectfully submit a new Claim 22 dependent upon Claim 9 that sets forth the ability to determine an optimum photolithography process window by further taking into account regionality effects of the single wafer.

With respect to the rejection of Claims 14-16 under 35 U.S.C. §102(e) as being anticipated by Leidy, applicants respectfully disagree. Particularly, Claim 14 is being amended to set forth that a single chip in a wafer is being exposed to a pattern of a reticle, the pattern having pattern features capable of producing varying overlay conditions, wherein each overlay condition of said varying overlay conditions has a different overlay

tolerance contributed by both varying image size and pattern feature alignment built into a reticle design. Specifically, dependent Claims 15-16 are being canceled and the subject matter therein incorporated into amended Claim 14 to set forth the different overlay tolerance features contributed by the reticle design for a exposure at a single chip.

Leidy teaches a process test system that functions in a manner similar to wafer striping that requires utilizing multiple exposures which utilize processing of entire lots of wafers, (e.g., a different CD feature being tested on a different wafer). There appears no teaching of a process for exposing a reticle at a single chip of a wafer much less the provision of multiple test structures from the multiple overlay conditions at said single chip.

Utilizing the single chip reticle design and methodology of the invention further enables the testing of regionality effects of the process window. Thus, new Claim 23 is being added to set forth the further step of stepping the reticle across one or more single chip portions of the single wafer, where each step exposes an other region of the wafer to the reticle pattern features producing the varying overlay conditions, wherein the optimum photolithography process window takes into account regionality effects of the single wafer. Respectfully, this is neither taught nor suggested by Leidy whether taken alone or in combination with Grodnensky.

Further to this, and in response to the rejection of Claims 9-13 under 35 U.S.C. §103(a) as allegedly unpatentable over Leidy in view of Grodnensky, Applicants note that the present invention, app. no. 10/707,198, was commonly-owned with subject matter of app. no. 10/016,211, which matured into U.S. patent 6,716,559 by International Business Machines Corporation at the time the present invention was made. This is

documented by the U.S. Patent and Trademark Office Notice of Recordation of Assignment recorded November 26, 2003 for present app. no. 10/707,198 at Reel 014159, Frame 0611 and by the Recordation of Assignment recorded December 13, 2001 for app. no. 10/016,211 at Reel 012397, Frame 0264. See also the enclosed STATEMENT OF COMMON OWNERSHIP TO DISQUALIFY A REFERENCE UNDER 35 USC § 103(c).

Therefore, under the provisions of 35 U.S.C. § 103(c), Applicants respectfully request that the Examiner remove U.S. patent 6,716,559 as a reference under 35 U.S.C. §103(a), and withdraw the rejection under Grodnensky and Leidy.

Wherefore, consideration and allowance of the claims of the present application are respectfully requested.

Respectfully submitted,



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